

FLAVOR BAN S.18

HEART DISEASE, TOBACCO, AND VAPING

Prospero B. Gogo, Jr., MD
Professor of Medicine
UVM Larner College of Medicine
February 23, 2023

PAST

51% to 17%

Decrease in smoking in American males 1965 to 2015

34% to 14%

Decrease in smoking in American females 1965 to 2015

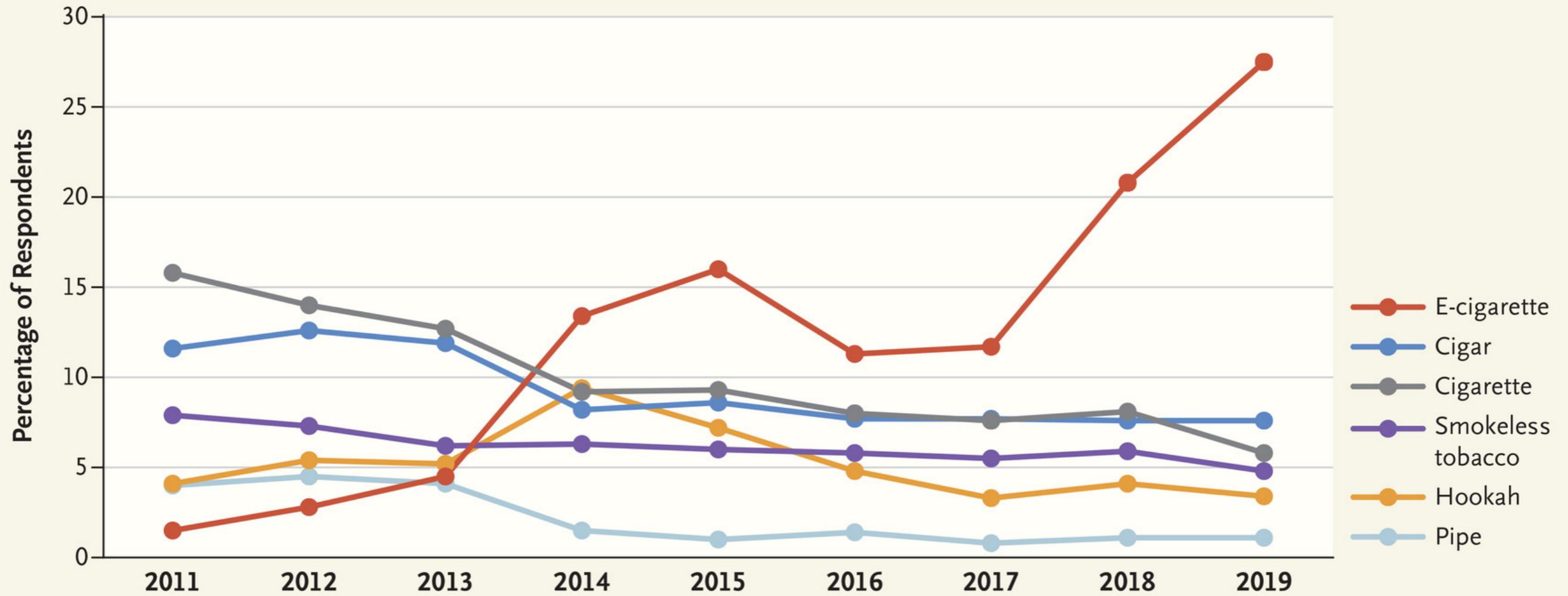
13% to 3%

Decrease in smoking in American youth age 12-17 2002 to 2016

16% to 8%

Decrease in smoking in American high school students 2011 to 2016

PRESENT



CDC data for various tobacco product usage in US teens, *NEJM* 2020.

21%

Smokers amongst all cath lab procedures at UVMHC 2021-2022

983

Stent procedures UVMHC FY2022

235

Large heart attacks (STEMI) treated at UVMMC FY2022

48%

Patients with large heart attacks at UVMMC and in recent international trials who are current smokers

\$18,340

Avg National Medicare payment for stent/acute myocardial infarction with complications in 2022 (DRG 246)

\$11,921,000

Total Medicare payments for treatment of estimated 650 Vermonters (UVMMC/DHMC) with stent/acute myocardial infarction in 2022 (DRG 246). ***THIS DOES NOT INCLUDE PRIVATE INSURANCE, WHICH REIMBURSES AS A SIGNIFICANTLY HIGHER RATE***

HEART ATTACK

CONGESTIVE HEART FAILURE

ATRIAL FIBRILLATION
VENTRICULAR TACHYCARDIA
UNSTABLE ANGINA
HEART ATTACK
STABLE ANGINA
CARDIAC ARREST
CARDIOGENIC SHOCK
CONGESTIVE HEART FAILURE

ECTOPIC PREGNANCY
CERVICAL CANCER
OSTEOPOROSIS
STROKE
EMPHYSEMA
LUNG CANCER
PULMONARY EMBOLISM
INFERTILITY
LIVER CANCER
TYPE 2 DIABETES
SIDS
BLADDER CANCER
POOR DENTAL HEALTH
HEALTH
LEUKEMIA
DEEP VENOUS THROMBOSIS
PANCREATIC CANCER
CHRONIC BRONCHITIS
CATARACTS
COLON CANCER
LOW BIRTH WEIGHT
PERIPHERAL VASCULAR DISEASE

ATRIAL FIBRILLATION
VENTRICULAR TACHYCARDIA
UNSTABLE ANGINA
HEART ATTACK
STABLE ANGINA
CARDIAC ARREST
CARDIOGENIC SHOCK
CONGESTIVE HEART FAILURE

1000

Estimated number of Vermonter deaths caused by smoking each year

\$404m

Annual Vermont health care costs directly caused by smoking

\$1037

Per household state and federal tax burden from smoking-related government expenditures

>\$15.5m

Estimated annual tobacco industry marketing spend in Vermont

FUTURE (?)

BUY JUUL

BUY JUULpods

CLICK TO BUY YOUR JUUL AND JUUL PODS DIRECT

This advertisement features a woman with long blonde hair and red lipstick, smiling and holding a black JUUL device. The background is a vibrant yellow with blue and orange geometric shapes. On the left, there are four JUUL pods in different colors: brown, teal, red, and yellow. Text buttons for 'BUY JUUL' and 'BUY JUULpods' are positioned above and below the pods. A central white banner contains the text 'CLICK TO BUY YOUR JUUL AND JUUL PODS DIRECT'.

JUUL

VAPORIZED

#SMOKINGEVOLVED

JUULvapor.com

This advertisement is split into two panels. The left panel shows a black JUUL device against a background of colorful geometric shapes (pink, blue, yellow, teal) and the word 'JUUL' in a large, bold, black font. The right panel features a woman with a high ponytail, wearing a grey jacket and black pants, holding a JUUL device. The word 'VAPORIZED' is written in large, bold, black letters across the middle. The background is a bright yellow with blue and orange geometric shapes. The hashtag '#SMOKINGEVOLVED' is in the top right corner, and 'JUULvapor.com' is in the bottom right corner.

JUUL

SMOKING EVOLVED

#JUULVAPORIZED

This advertisement features a woman with blonde hair, wearing a denim jacket and black pants, with her hands raised in a 'rock on' gesture. The background is a vibrant pink with white and purple geometric shapes. The word 'JUUL' is in a large, bold, black font on the left, and 'SMOKING EVOLVED' is in a smaller, bold, black font on the right. A black JUUL device is shown vertically in the center. The hashtag '#JUULVAPORIZED' is in the top right corner.

JUUL

VAPORIZED

BUY JUUL

BUY JUULpods

This advertisement is split into two panels. The left panel shows a black JUUL device against a background of colorful geometric shapes (yellow, pink, teal) and the word 'JUUL' in a large, bold, black font. The right panel features a woman with dark curly hair, wearing a white jacket and blue pants, holding a JUUL device. The word 'VAPORIZED' is written in large, bold, black letters across the middle. The background is a bright yellow with blue and orange geometric shapes. Text buttons for 'BUY JUUL' and 'BUY JUULpods' are positioned above and below the pods. The woman is making a 'rock on' gesture with both hands.

**WARNING: This product contains nicotine.
Nicotine is an addictive chemical.**



 Store Locator  Support



The mission of Juul Labs is to transition the world's billion adult smokers away from combustible cigarettes, eliminate their use, and combat underage usage of our products.

CREATE ACCOUNT

LOG IN

To access all JUUL products and online benefits, create your account and start the simple 2-4 minute age verification process.

EMAIL

PASSWORD



CONFIRM PASSWORD



By checking this box, you agree to our [Terms and Conditions](#). For more information about how we collect and use your data, check out our [Privacy Policy](#).

VERIFY MY AGE TO CREATE ACCOUNT

You are only permitted to create one account. If you need help logging in

WARNING: This product contains nicotine. Nicotine is an addictive chemical.

HOME AGE VERIFICATION ABOUT US FAQ WHOLESALE CONTACT SIGN IN OR CREATE AN ACCOUNT



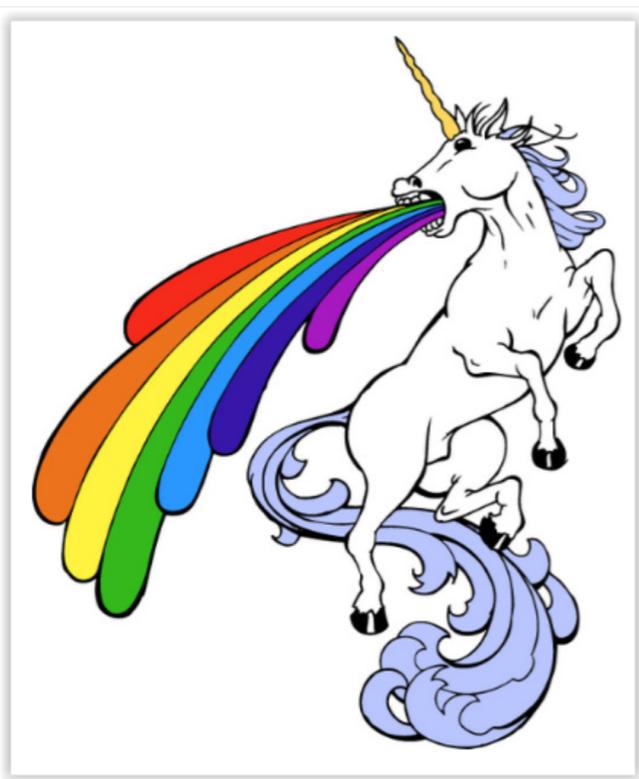
QUALITY USA MADE EJUICE STARTING AT \$2.49



WHAT ARE YOU LOOKING FOR?

ELIQUID DIY BATTERIES & CHARGERS TANKS KITS MODS & RBA'S PARTS & ACCESSORIES SALES PIPES/HERB/WAX

★ REVIEWS



UNICORN VOMIT

★★★★★ 215 Reviews

\$2.49

* Amount:

-- Please Choose an Option --

* Nicotine Strength:

-- Please Choose an Option --

* Mix:

-- Please Choose an Option --

Add Menthol:

-- None --

Add Sour:

-- None --

Add Sweetener:

-- None --

SIGN UP

FOR NEWS & SPECIAL DEALS

Enter email here

Overview

Product Description

This is one our best sellers in our retail store. Imagine you're 9 and your mom let you get whatever you wanted at the store and you chose the most sugar-filled, sour powder you could find. The kind that stains your tongue blue and bites at the back of your mouth with a sweet and sour punch! With hints of fruit and candy after notes, it'll bring out your inner child. *This juice will need steeping and airing out even after delivery to bring out the fullest flavor.

Made with the highest quality ingredients our E-Juice is 100% USA made. Your order will be custom filled when it is placed, instead of having an old juice with and unknown manufactured date you will only receive the freshest quality juice available. Ingredients used in our E-Juice are USP food grade. We are confident our 100% USA made E-Juice will not only taste good but also calm your nicotine needs. Steeping(aging) may be required in order to bring out the fullest flavor of our juice. You must be 18 years of age to purchase this product.

Other top rated products



E-Juice Flavoring
★★★★★ (475)
\$7.49



70ml & 125ml Five Bo...
★★★★★ (509)
\$46.99



32ml Five Bottle Samp...
★★★★★ (634)
\$31.49



Extreme Ice
★★★★★ (267)
\$11.99

Overview

Product Description

This is one our best sellers in our retail store. Imagine you're 9 and your mom let you get whatever you wanted at the store and you chose the most sugar-filled, sour powder you could find. The kind that stains your tongue blue and bites at the back of your mouth with a sweet and sour punch! With hints of fruit and candy after notes, it'll bring out your inner child. *This juice will need steeping and airing out even after delivery to bring out the fullest flavor.

Made with the highest quality ingredients our E-Juice is 100% USA made. Your order will be custom filled when it is placed, instead of having an old juice with and unknown manufactured date you will only receive the freshest quality juice available. Ingredients used in our E-Juice are USP food grade. We are confident our 100% USA made E-Juice will not only taste good but also calm your nicotine needs. Steeping(ageing) may be required in order to bring out the fullest flavor of our juice. You must be 18 years of age to purchase this product.

Other top rated products



E-Juice Flavoring
★★★★☆ (475)
\$7.49



70ml & 125ml Five Bo...
★★★★☆ (509)
\$46.99



32ml Five Bottle Samp...
★★★★☆ (634)
\$31.49



Extreme Ice
★★★★★ (267)
\$11.99

BESTSELLERS, flavorwest.com

1. Strawberry (Sweet)
2. Blueberry (Sweet)
3. Candy Banana
4. Banana Cream
5. Pomelo
6. Butterbeer
7. Cake (White)
8. Choco Wafer Bar
9. Waffle Cone
10. Malt Candy Balls

BESTSELLERS, thevapemall.com

1. Extreme Ice
2. Cinnamon Fire
3. RY4 (caramel and vanilla)
4. Menthol (Liquid)
5. Spearmint
6. Dragon Juice
7. Western Cowboy
8. Vanilla Custard V2
9. Peppermint
10. Unicorn Vomit

> 2x

Likelihood that e-cig user subsequently starts smoking (compared to non-users)

21% to 34%

Increased use of vaping as a THC delivery device amongst 12th graders from the "Monitoring the Future" survey (NIH) between 2016-2018. Strong between vaping device use and marijuana vaping, between vaping device use and marijuana use, between vaping device use and synthetic cannabinoids use, and between marijuana use and synthetic cannabinoids use.

NATIONAL HEALTH INTERVIEW SURVEY BY THE CDC

n=96,467 > age 18

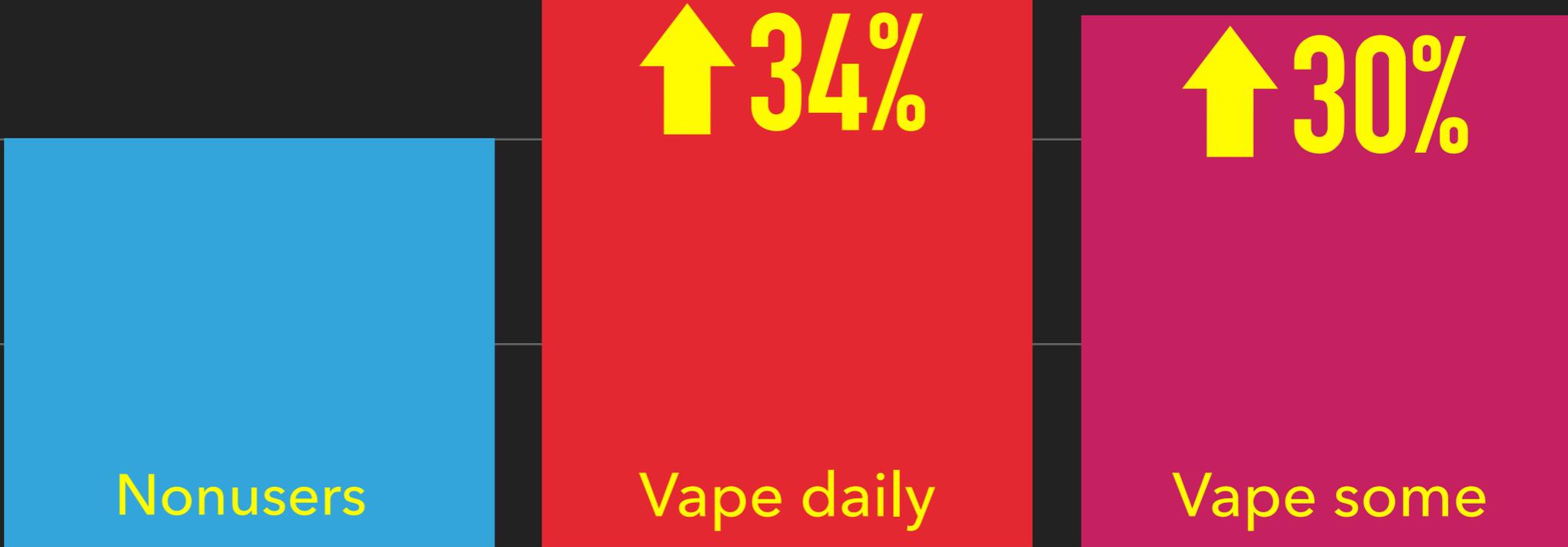
2014, 2016-17

Controlled for cardiac risk factors

(age, sex, BMI, cholesterol, hypertension, and smoking)

Odds

3
2.5
2
1.5
1
0.5
0



HEART ATTACK

Association, not causation

Decreased heart rate variability suggestive of increased sympathetic tone similar to smoking cigarettes (*JAMA Cardiology*, 2017)

Increased LDL oxidizability compared to non-smokers
(*JAMA Cardiology*, 2018)

Vaping nicotine-free products causes vascular dysfunction on MRI in otherwise healthy volunteers. (*Radiology*, 2019)

Vaping nicotine-free products causes increased markers of inflammation in healthy volunteers. (*Am J Physiology*, 2019)

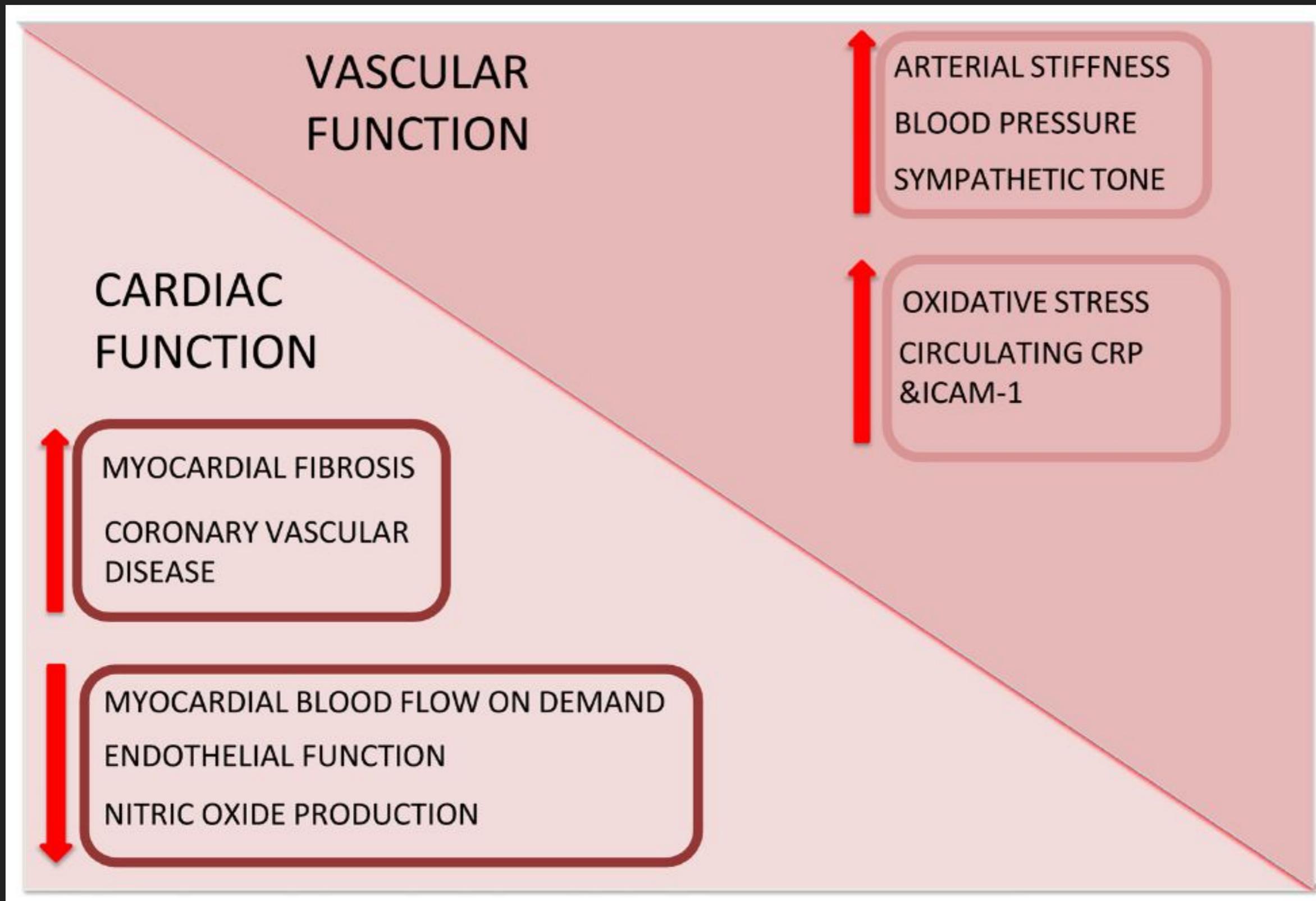
E-cigarette use produced an adverse lipid profile and glucose alterations in a pattern similar to smoking. (*Circulation*, 2019)

Chronic E-cigarette users demonstrate more persistent coronary endothelial dysfunction than chronic combustible cigarette users.
(*Circulation*, 2019)

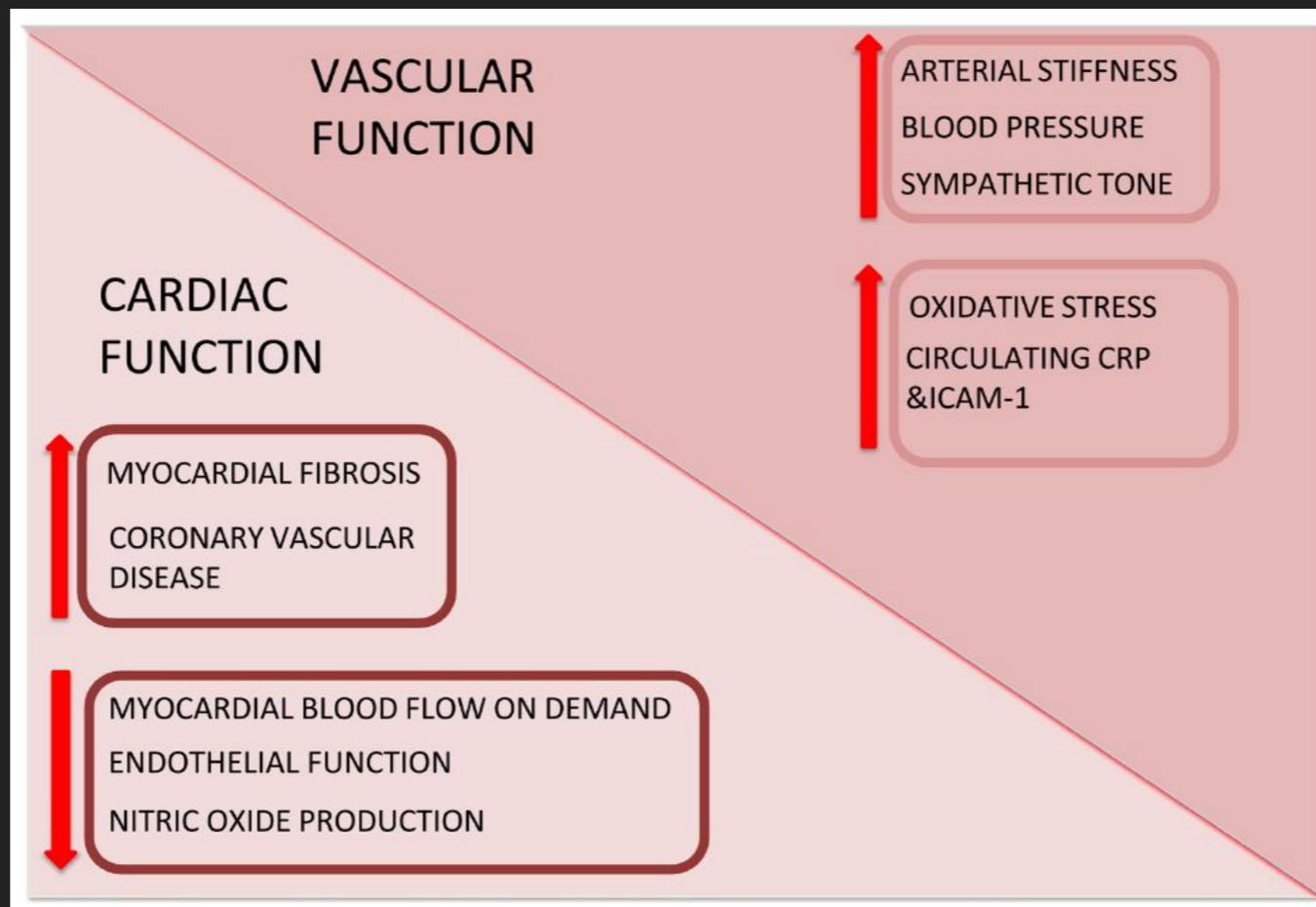
E-cigs cause alteration in cardiac structure and function in diet-induced obese mice (*PLoS One*, 2020)

E-cigs cause elevated cellular oxidative stress in circulating immune cells in otherwise healthy young people (*JAHA*, 2020)

Users of vape products have impaired endothelial function similar to users of combustible tobacco products. (*JAHA*, 2020)



From "Cardiopulmonary Consequences of Vaping in Adolescents: A Scientific Statement From the American Heart Association"



Increased Heart Attack and Stroke by Middle Age (?)